

Our Melting Ice Cube

Author: Diana Madson

LESSON OVERVIEW

Grade/Level: Kindergarten

Learning Goal(s)/Objective(s): Teach kindergarteners about the relationship between the water that comes from the faucet and its source of origin. The lesson is designed to expose children to the reality that water is not an unlimited resource that magically derives from the faucet. Building on the idea that water is a precious resource, this lesson emphasizes the need for conservation and how children can participate in water conservation.

Time Allotment: 60 minutes per class.

Activity Logistics: Find out where the water comes from in your community in order to teach the appropriate water pathway. The following images and correlating script describes a system where primary water source is surface water.

*This project is ideally taught in conjunction with “Earth has a Fever,” which is also available on the California Coastal Commission website, www.coastforyou.org

More resources on our water supply can be found in the California Department of Water Resources “Water Facts and Fun Catalog.” www.publicaffairs.water.ca.gov/education/catalog_index.cfm

MATERIALS & RESOURCES

Instructional Materials (handouts, etc.): Images (included) of: snow and snowpack/rain, stream, water treatment works, pipes, home faucet, sewage treatment plant, pipe, reservoir. Additionally, there is the larger “I Can Conserve” list of ways to conserve water. Please make individual copies for each child, cut out the indicated square for each image (7 small squares and one large “I Can Conserve” image for each child—two, 8.5"x11" sheets).

About two feet of blue yarn (to represent water) for each child.

Tape, for taping pictures to the yarn (Alternatively, you may punch a hole in the top and bottom of each small picture and have students thread the yarn through the holes rather than taping the pictures together)

Crayons, colored pencils, or markers

*Please note that the most time-consuming aspect of the project will be the taping of the squares onto the yarn. Consider providing accessible tape for the children so they can apply tape themselves. Another option is to have the children line the squares up in numerical order before you assist them with the taping. Prepare one of the “water chains” in advance for direct instruction as well as print the enlarged version of each image for instruction.

IMPLEMENTATION

- Anticipatory Set: “Today, we are going to discuss where our water comes from. Where do you think the faucet water comes from?” (In order to tap into the children’s prior knowledge, ask them and let them respond.)
- Guided Practice: **1.** "Well, water actually takes a long journey to get to our homes. Some water comes from rain and some water comes from the snow in the Sierra Nevada Mountains, called the 'snowpack.' Let’s start with the water that comes from the Sierra snowpack."
(Hold up the large image of the mountains/rain.)
"The snowpack is like a giant ice cube that lives on top of the Sierra Nevada Mountains. Parts of the ice cube stay frozen all year long and other parts freeze in the winter and become water in the spring. As the ice cube melts in the spring, the water flows down the mountain into streams and then into rivers. The melting 'ice cube' provides water at a time when there’s usually not much rain. When it does rain, the rainwater falls from the sky and some of it nourishes the plants while a lot of it flows into the streams and the rivers."
(Hold up the large image of the stream.)
"Some of these streams flow into a big lake called a reservoir."
(Hold up the large image of the reservoir.)
"A reservoir is a lake that people use to hold water for things like drinking, bathing, and watering plants. When the water leaves the reservoir, it goes through a whole bunch of pipes that bring the water to a water treatment works."
(Hold up the large image of the pipe.)
"The water treatment works then cleans the water."
(Hold up the large image of the water treatment works.)
"After it is cleaned, this is the water that comes out of the kitchen faucet, out of the shower faucet and fills up the toilet."
(Hold up the large image of the sink.)
- 2.** "Can you pretend to be the snow on top of the mountain? Can you pretend to be the pouring rain or the water flowing down the mountain?"
(Hold up the enlarged image of the mountains/rain and encourage the children to stand up and shiver like they’re cold, then move around as they pantomime the rain and the water flowing down the mountain. Continue this practice with the stream, reservoir, water treatment works,

pipes, and sink.)

3. *(Bring children back into the circle time position.)*

"Now that we know where our water comes from, what do you think happens to it after it goes back down the drain or into the toilet?"

(Ask the children to think and share with a partner-pair share.)

4. "The dirty water that we put into the sink and the toilet goes back through a bunch of pipes and reaches another place where it gets cleaned, the sewage treatment center."

(Hold up the enlarged image of the sewage treatment center.)

"It takes a whole lot of work to make this water clean again. Once the factory cleans most of the dirty parts out of the water, it channels the water into pipes and it is dumped into rivers or into the ocean."

(Hold up the enlarged image of the ocean.)

5. "Now let's pretend to be the water that goes down the drain in the sink, through the pipes, into the sewage treatment works, and then into the oceans."

(Likewise, engage the children with physical movements by acting out the journey of water. Hold up the image for each stop on the water chain as the children act them out. When finished, have children return to circle time seating.)

6. "Isn't it great that we are able to have water when we need it? This system of water is very important and it allows us to always have water to drink, be able to take baths, be able to go swimming. Can you think of other things we do with water everyday?"

(Pause for response.)

7. "It is really important that we think about where our water comes from. Does anyone or anything else need the water in the rivers and lakes? What do you think would happen if we used up all of the water in the rivers? What would happen to all of the fish and animals that live in the water? What would people in other parts of California do if we used up all of their water?"

(Ask the kids and encourage them to respond.)

8. "We need to remember that we are sharing the water with all the plants, animals and their homes. When we take the water out of the big lakes we take away some of the water that the fish, frogs, birds, and other animals and plants need. When we use up the water, we leave less water for everyone else. So we need to learn how to conserve water. Conserve means to save and protect. How do you think we can conserve water?"

9. "It is important to think about the water in California that comes from the Sierra Nevada Mountains. Some of the ice cube we were talking about earlier is melting now and not freezing again because the earth is getting warmer. As the earth warms, it may not snow as much as it used to. Because so much of the ice cube is melting and less snow is freezing,

less water flows into the reservoirs in the spring and summer. This is another reason why conserving water is so important. We need to learn to use only as much water as we need and not waste any water. If we waste water we do not leave enough to share with the animals, plants and other people.”

10. “We are going to learn today different ways of conserving water. Conserving water means that we only use as much water as we NEED, like the water we drink or take baths and showers with. We make sure not to waste water by doing things like turning off the bathroom faucet while we brush our teeth, not using the toilet as a garbage can, taking shorter showers, only filling the bathtub halfway, and turning off the kitchen sink when washing dishes. By saving water we are being good citizens because we are being considerate to other Californians and to the animals and plants that need the water. If we can share our water then there can be enough for everyone. How do you think we can conserve water? What are some ways in which we can conserve water?”

Independent Practice:

11. “Can you show me how to conserve by acting it out? Let’s all practice turning off the water while brushing our teeth together.”
(Hold up the enlarged “I Can Conserve” image. Continue pantomiming the following actions and explain each action while you do it: taking a fast shower, turning off kitchen sink, etc.)

12. “In order to keep thinking about conservation, you will each receive a bunch of pictures showing the process we just talked about. We are going to color them in together, tape them in order along the blue water yarn, and think about the different things we can do to save water.”
(Pass out individual copies of the images and have the children color in the images and tape or thread them in the proper order along the blue yarn, representing the flow of water. Encourage them to talk about what they are coloring.)

Closure:

Have children gather around and ask them what they can do to conserve. The children will be able to take home this “water chain” and they are encouraged to share what they learned with their families.

CALIFORNIA CONTENT STANDARDS FOR KINDERGARTEN

English- Language Arts	Listening and Speaking
	1.0 Listening and Speaking Strategies
	Comprehension
	1.1 Understand and follow one-and two-step oral directions.
	1.2 Share information and ideas, speaking audibly in complete, coherent sentences.
	2.0 Speaking Applications (Genres and Their Characteristics)
	Using the listening and speaking strategies of kindergarten outlined in Listening and Speaking Standard 1.0, students:
	2.1 Describe people, places, things (e.g., size, color, shape), locations, and actions.

Science

Physical Sciences

1. Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:
 - b. Students know water can be a liquid or a solid and can be made to change back and forth from one form to the other.

Earth Sciences

3. Earth is composed of land, air, and water. As a basis for understanding this concept:
 - a. Students know characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms.
 - c. Students know how to identify resources from Earth that are used in everyday life and understand that many resources can be conserved.

Kindergarten — California Science and History/Social Science Learning Objectives In the Context of California's Environmental Principles and Concepts

Science

Academic Content Standards:

Earth Sciences

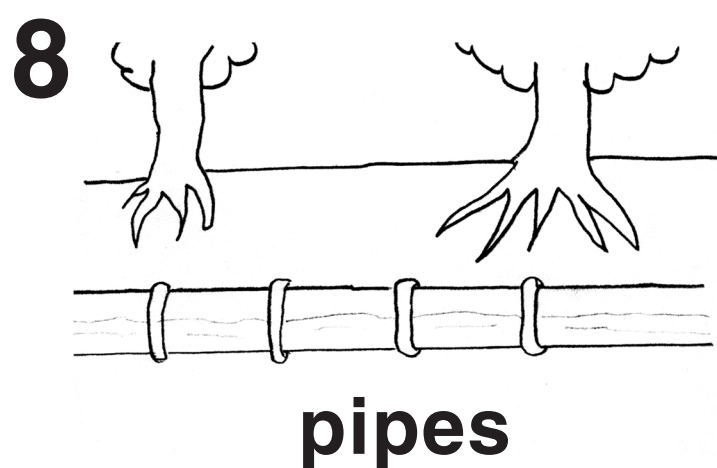
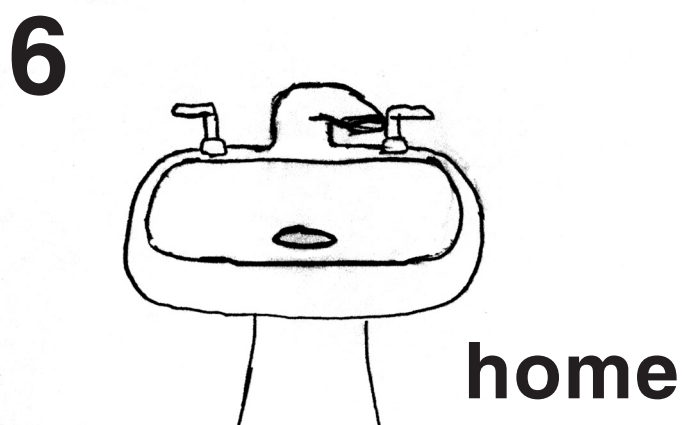
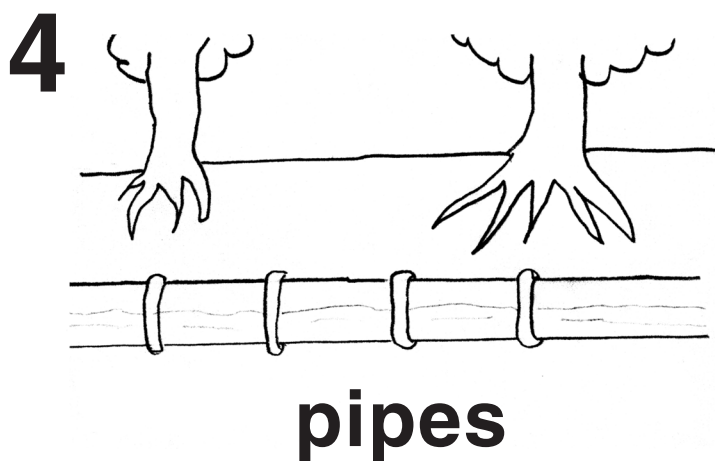
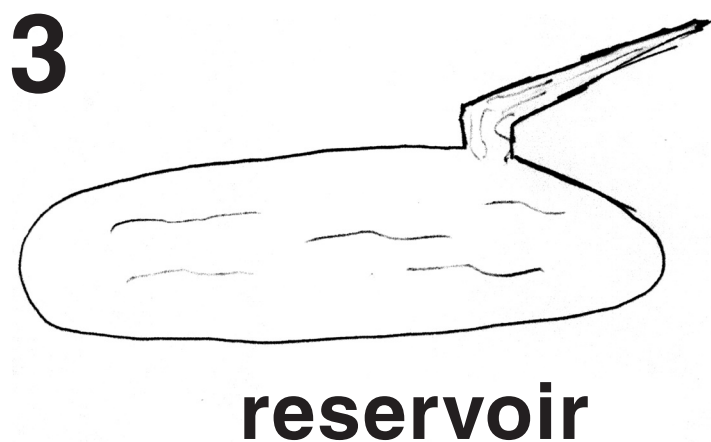
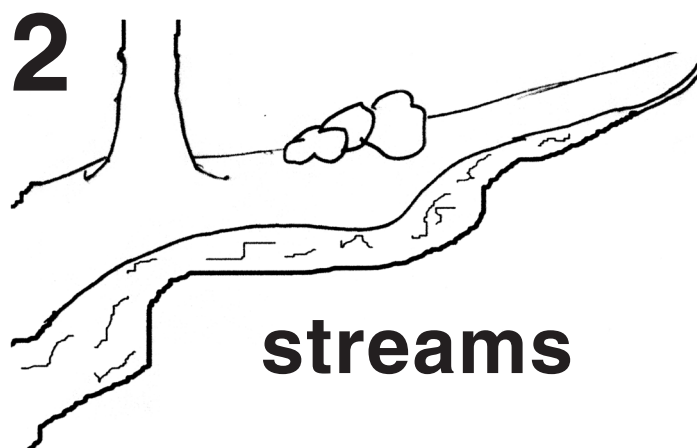
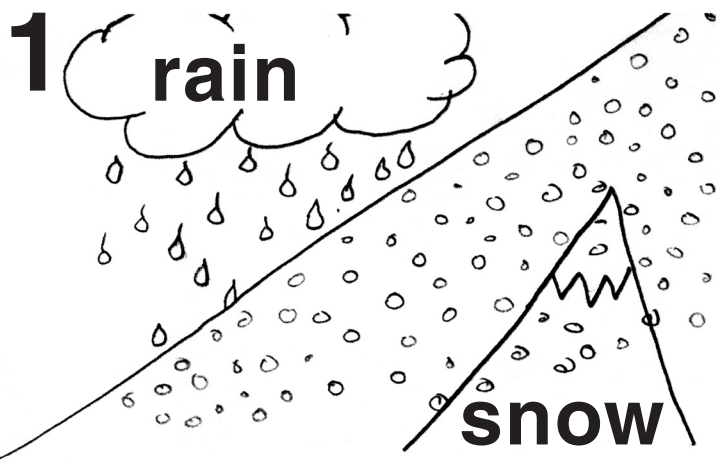
3. Earth is composed of land, air, and water. As a basis for understanding this concept:

- c. Students know how to identify resources from Earth that are used in everyday life and understand that many resources can be conserved.

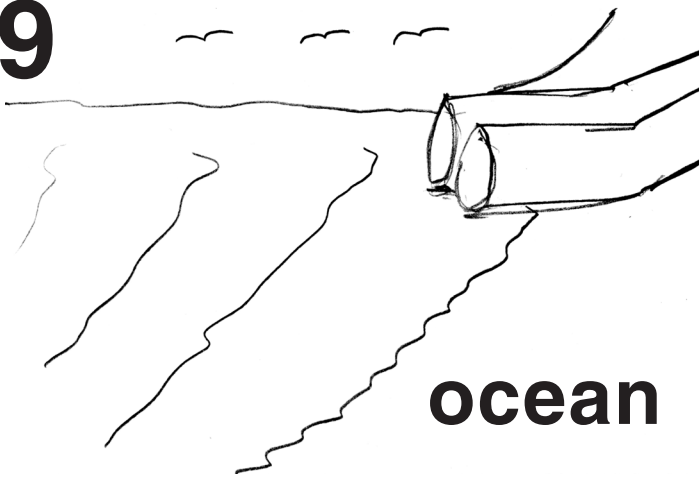
Standards-based Learning Objectives in the Context of the EP&C:

Students will:

- Identify resources (goods and ecosystem services) that people use in everyday life (e.g., food, air, water, clothing).
- Describe the origins of everyday resources (e.g., food comes from plants and animals, air comes from the atmosphere, water from lakes and rivers).
- Recognize that all of the everyday resources they use come from natural systems.
- Provide examples of how these resources are gathered, harvested or extracted from natural systems.
- List ways these resources can be conserved.



9



I Can Conserve!

**Turn off water
when brushing
teeth**



**Fill up the
bathtub only
halfway**



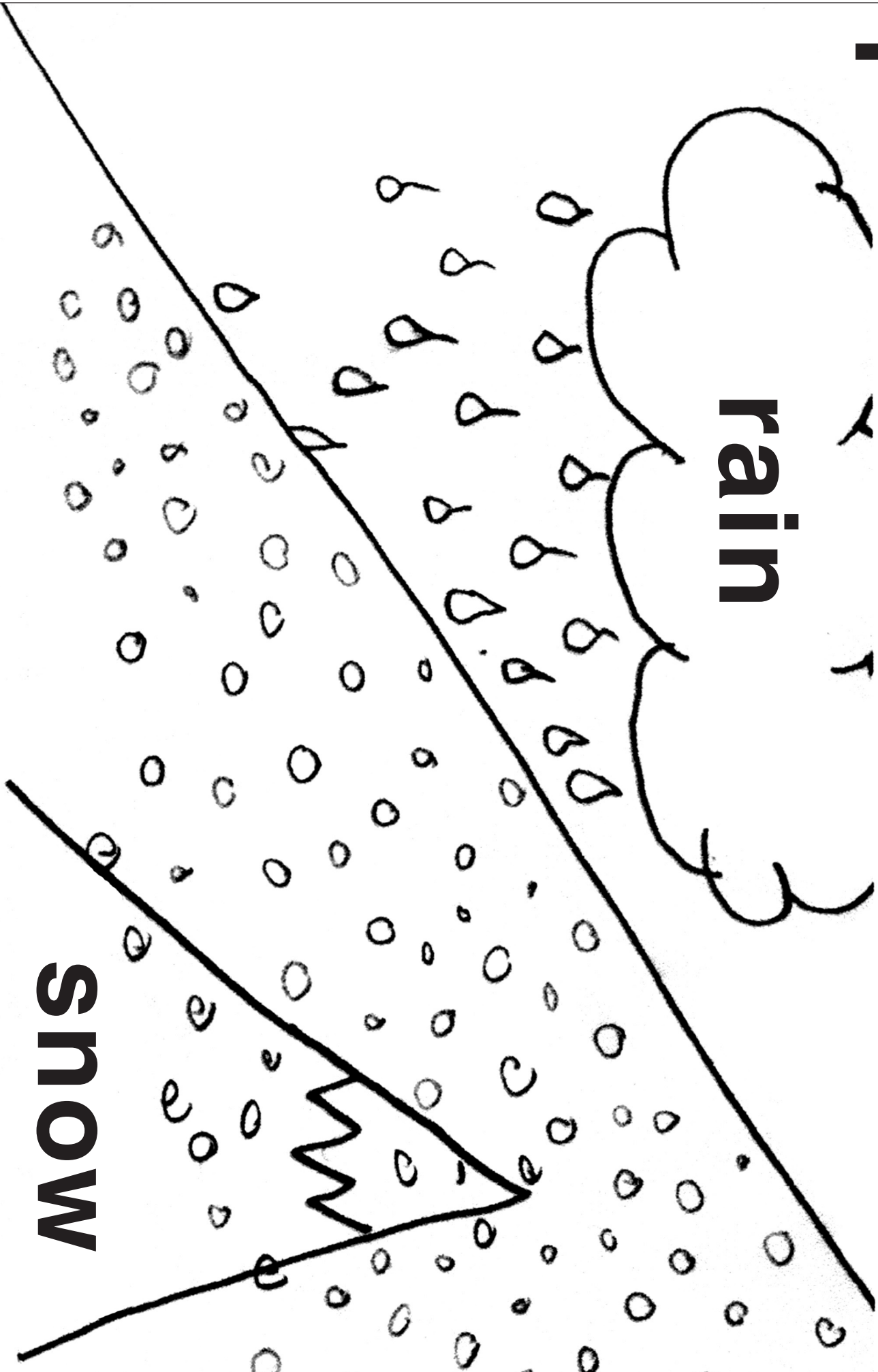
**Do not let
the kitchen
sink run when
washing dishes**

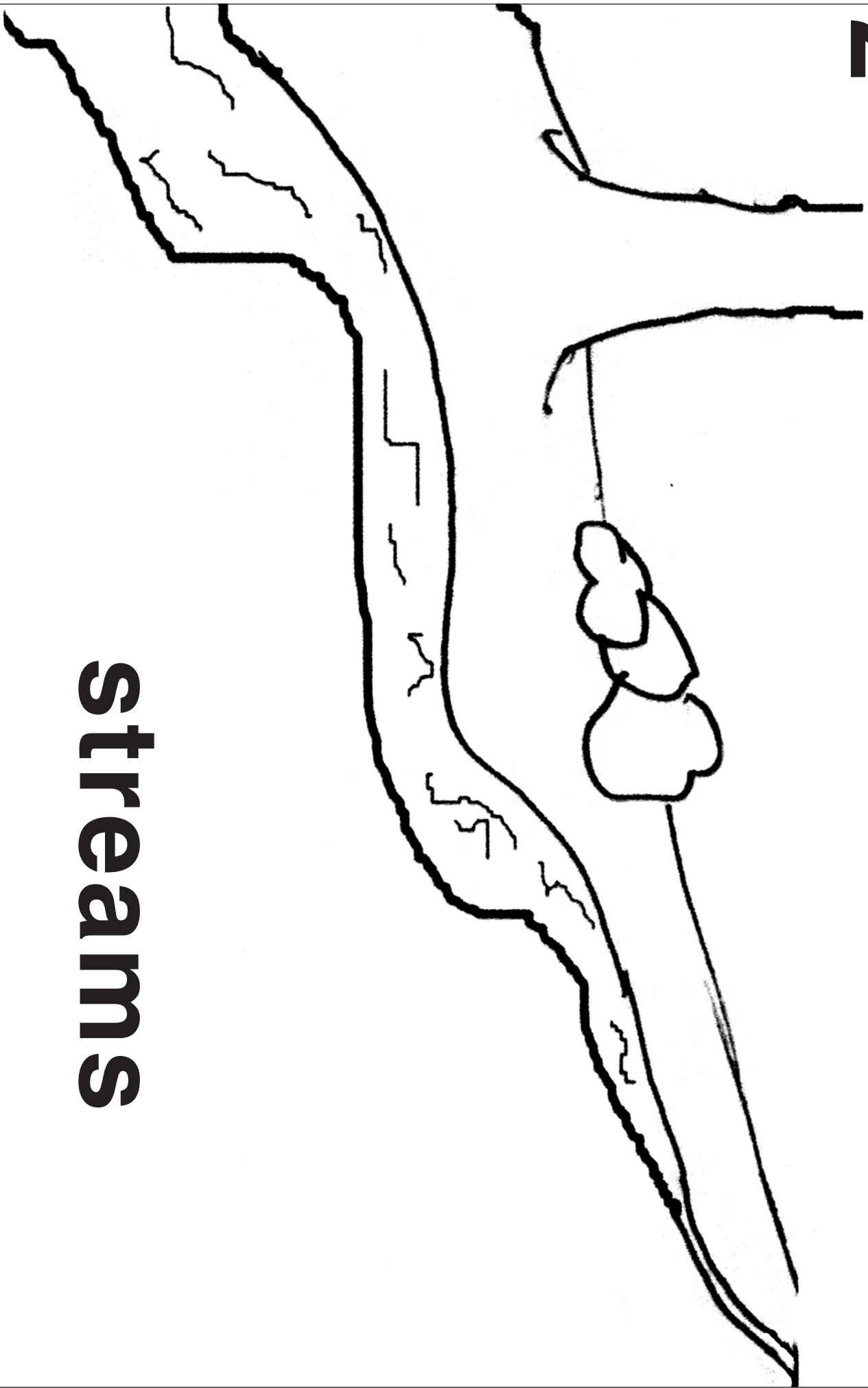


1

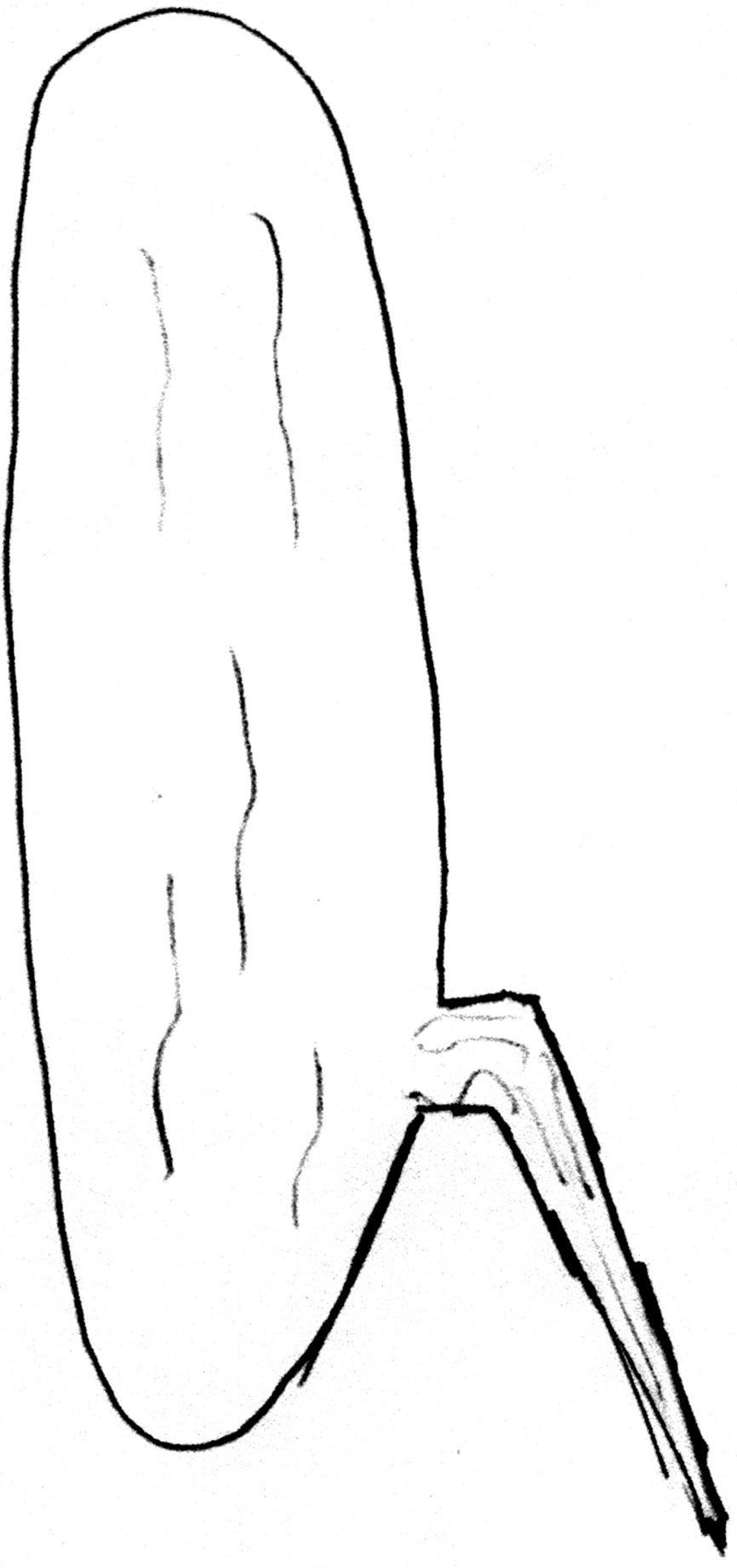
rain

snow





streams

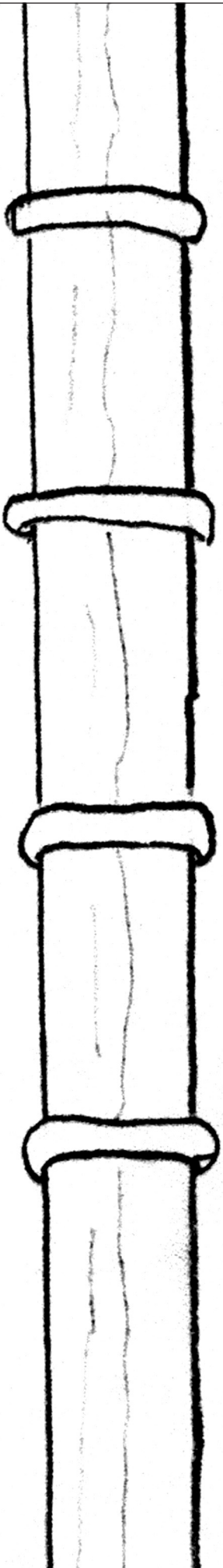


reservoir

4

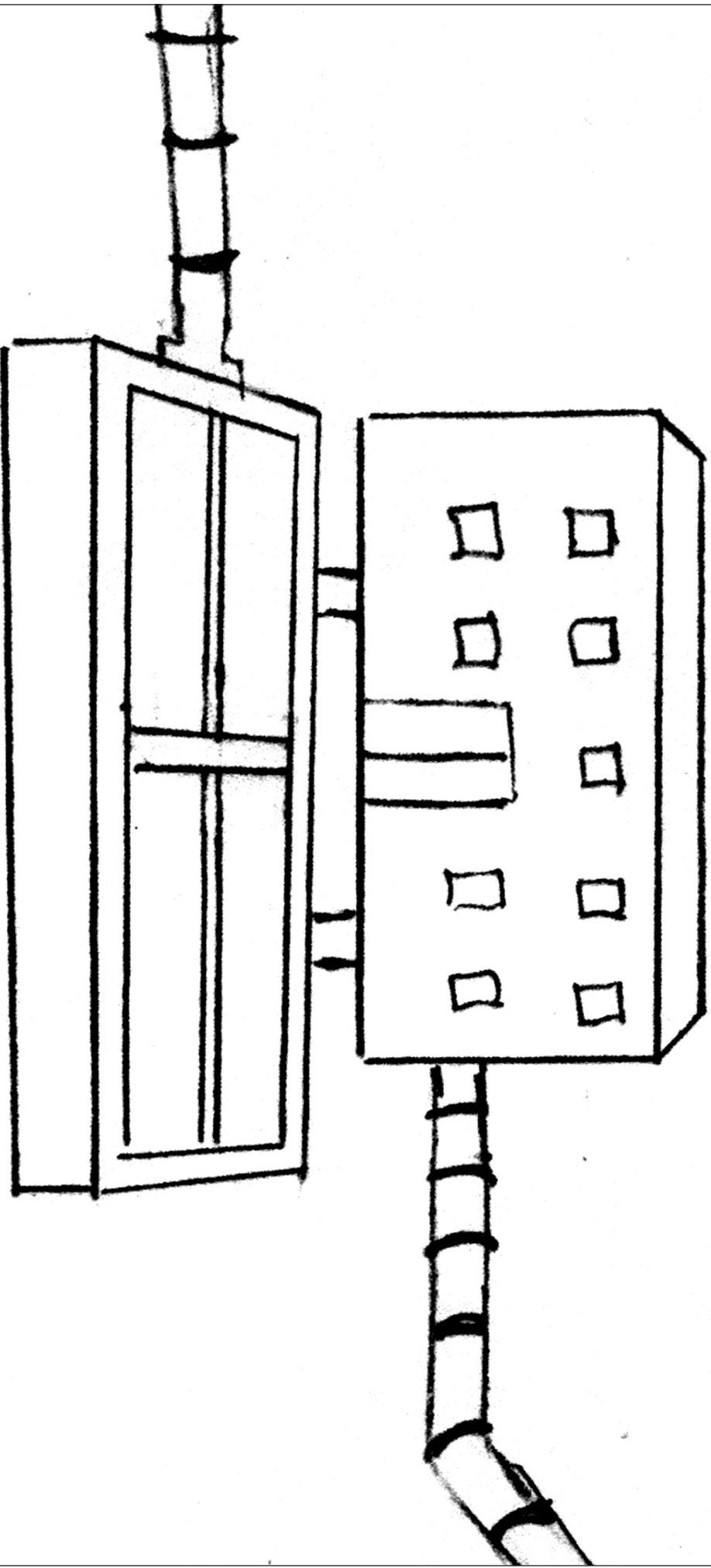


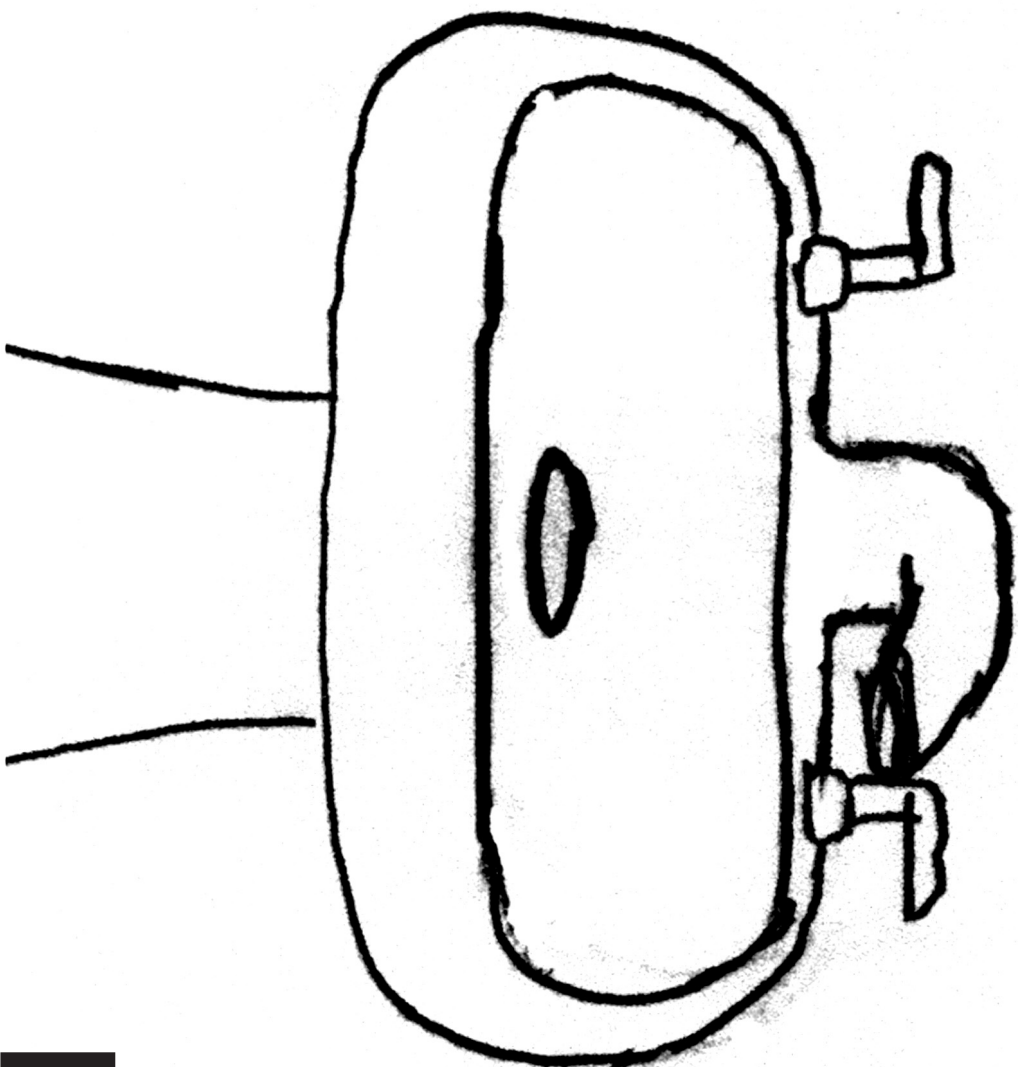
pipes



5

water treatment

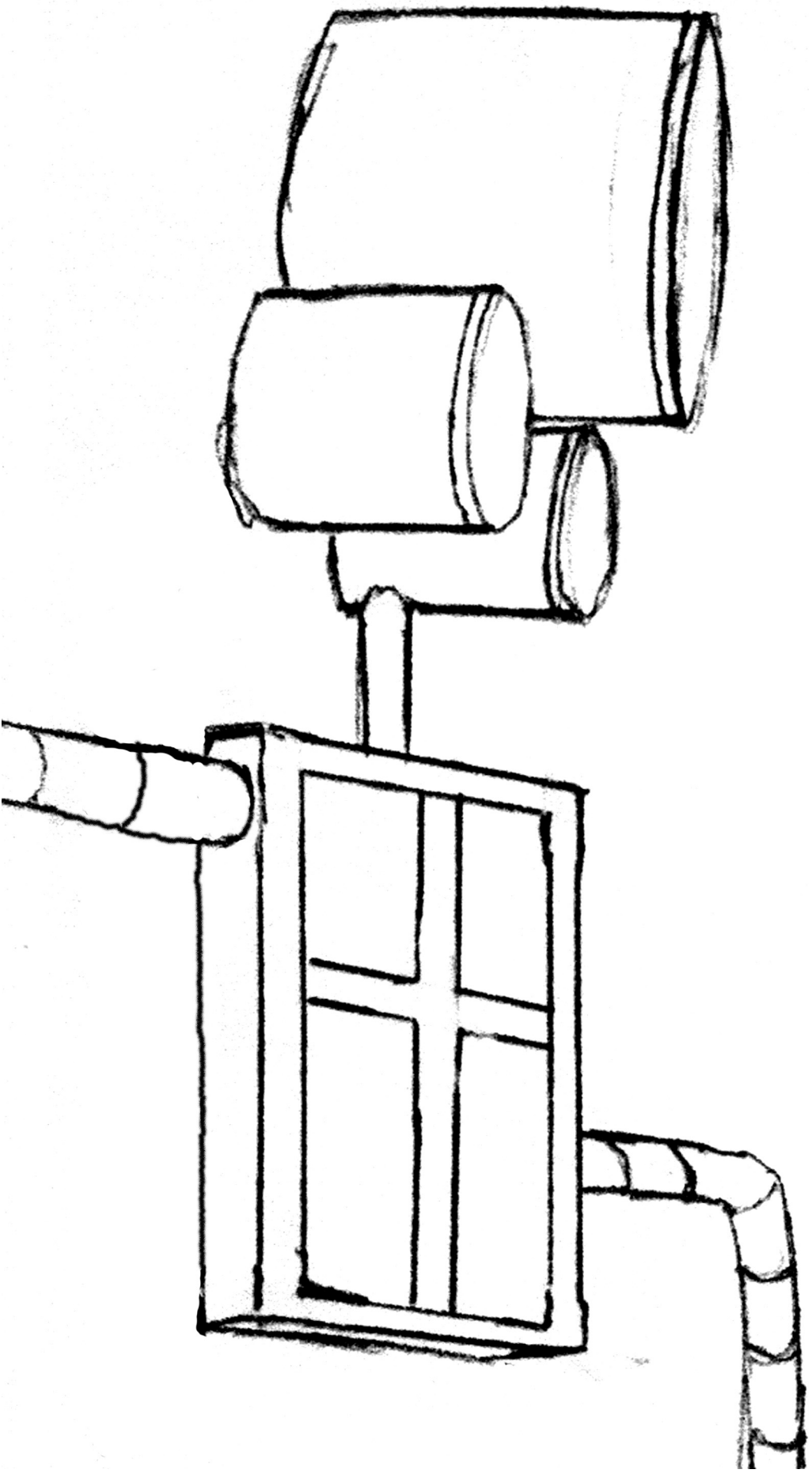




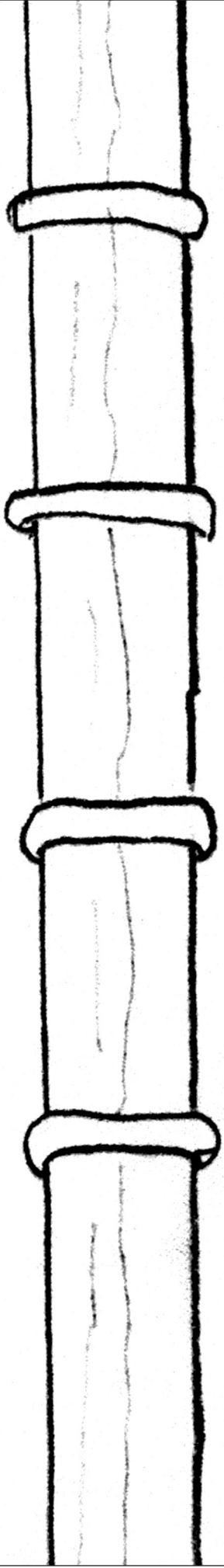
home

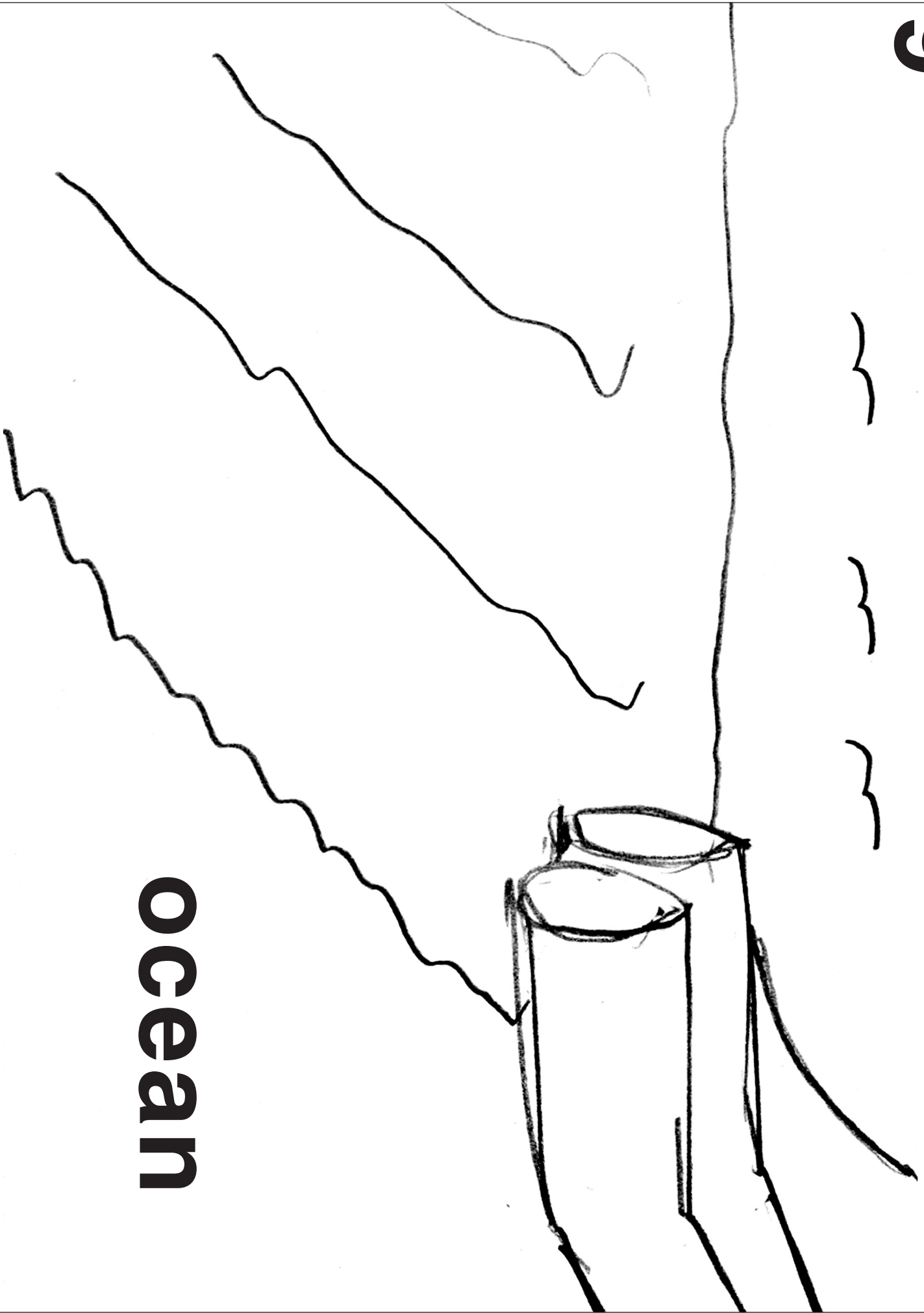
7

sewage treatment



pipes





ocean